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ABSTRACT

This study used data from the U.S. Department of Education's 1999-00 Schools and Staffing Survey to examine the issue of out-of-field teaching in secondary schools. Results indicated that U.S. secondary schools have unacceptably high rates of out-of-field teaching in core academic subjects, with classes in high poverty and high minority schools the most likely to be assigned out-of-field teachers. The nation made no progress in reducing this problem between 1993-94 and 1999-00. While high schools rely heavily on out-of-field teachers, the problem is far worse in middle schools. Out-of-field teacher assignment rates are particularly high in mathematics. States differ widely in their levels of out-of-field teaching and how it affects poor and minority students. Overall, poor and minority students consistently receive substantially fewer well-qualified teachers. Recommendations for action include: act immediately on the problem of misassignment; get clear about standards for middle school teachers; hold standards high; use up-to-date recruitment techniques and find new partners; and press school districts to work toward a fair distribution of teacher talent and provide incentives for effective teachers to teach in high poverty and high minority schools. (SM)

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All Talk, No Action: Putting An End to Out-of Field Teaching

Craig D. Jerald
The Education Trust

2002

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All Talk, No Action:

Putting an End to Out-of-Field Teaching

by Craig D. Jerald, The Education Trust
Data Analysis by Richard M. Ingersoll, University of Pennsylvania

Over the past decade, teacher quality has become one of the most widely and loudly discussed issues in education. And no problem related to teacher quality has received more attention than the unacceptably high rates of out-of-field assignment in the nation's middle schools and high schools. A solid consensus, based on research and common sense, now recognizes that secondary teachers must be knowledgeable about the subjects they teach if they are to help all students achieve high academic standards.

Yet, according to a new analysis based on recently released results from the latest federal Schools and Staffing Survey, the amount of out-of-field teaching in the nation and states remains unacceptably high, with classes in high-poverty and high-minority schools much more likely to be assigned to a teacher lacking minimal academic qualifications in the subject being taught. The analysis also reveals that, while out-of-field teaching is far too pervasive at the high school level, the problem is even worse in middle schools, where very high rates of misassignment suggest a staggering disregard for whether teachers have the minimal academic foundation necessary to teach classes in core academic subject areas.

Finally, the study reveals that the nation made no progress in reducing out-of-field teaching between 1993-94 and 1999-2000, the year the latest survey was administered. If anything, the problem actually got somewhat *worse*, a change largely driven by higher rates of out-of-field teaching in the nation's lowest-income and highest-minority schools, the very schools where students need good teaching the most desperately.

What can account for the stubborn inertia behind such disappointing results? The obstacle is not a lack of agreement that there's a problem, nor disagreement

about how serious it is. National commissions, international conferences, pronouncements by national and state leaders, extensive media coverage, compelling new research evidence, stacks of reports, and buckets of political soundbites and goal-setting all have contributed to a growing sense of urgency on the topic over the past decade.

Nor is the obstacle that the problem is impossible to solve. Certainly, regional labor-market shortages in some fields can exacerbate the problem. But a growing body of evidence suggests that there are plenty of teachers within the system, and potential teachers outside it, who have (or, with some initial help, could obtain) the necessary academic foundation to teach secondary-level math, science, social studies, or language arts. After all, as Richard Ingersoll—a University of Pennsylvania researcher—points out, how can shortages explain out-of-field teaching in subjects like language arts and social studies, where we have long recognized the existence of teacher surpluses?[1] In other words, out-of-field teaching isn't nearly as natural or inevitable as many believe.

Indeed, in his 1999 State of American Education speech, speculating on why American schoolchildren fall so far behind their international peers by the time they reach the end of high school, then-Secretary of Education Riley admitted, "There is a unique American phenomena that really makes no sense—the practice of assigning teachers to teach 'out of field.' Foreign education ministers who visit me are just stumped when I try to explain this practice. Their translators simply have no words to describe it."

What's missing is action. Despite all of the lip service given to the problem over the past decade, most states and districts still operate as if it is acceptable to assign secondary classes in specific subjects to individuals who never studied them. Even states that claim to outlaw or discourage the practice leave plenty of loopholes through which the practice is allowed to continue. Fortunately, the new No Child Left Behind Act recognizes that the key to raising student learning and closing achievement gaps lies in access to a highly qualified teacher for all students. That new federal requirement should signal to all of us that the time for empty talk is long over. To provide every student with a qualified teacher, education leaders must take action now to put an end to the practice of assigning out-of-field teachers once and for all.

Key Findings

For this report, Richard M. Ingersoll, a University of Pennsylvania researcher and one of the nation's foremost experts on measuring teacher qualifications and distribution, conducted a special analysis of recently released results from the U.S. Department of Education's 1999-2000 Schools and Staffing Survey (SASS). The data are from a large and statistically representative sample of American schoolteachers and yield the most recent and reliable information currently available for comparably examining out-of-field teaching and other teacher indicators across the nation and in each state.

Even so, these data should be considered only a starting point. Some states collect much more comprehensive information about their teachers than can be extracted from a sample survey such as SASS, including district- and school-level data. The others will have to follow suit over the next year in response to new mandate in the No Child Left Behind Act which will require such data to be collected for every school and every district. We encourage you to find out what data are available from states and districts to investigate further and round out the picture painted by these findings.

Three Important Things We're NOT Saying

1. No, in most subjects, out-of-field teaching is NOT primarily the result of a "shortage."

Richard M. Ingersoll, the University of Pennsylvania researcher who conducted this study for the Education Trust, elsewhere has published compelling evidence that out-of-field teaching isn't simply the result of intractable shortages in the teacher labor market. Instead, his research suggests that the way schools are organized and operated, and how teachers get assigned within that system, contribute to out-of-field teaching just as much as problems with supply.

According to one such analysis using the 1993-94 Schools and Staffing Survey database, Ingersoll notes that "School district regulations concerning minimal education requirements for new hires, the quality of principal leadership, the strategies schools use to cope with teacher recruitment and hiring, and average class sizes" all contribute to the amount of out-of-field teaching in U.S. schools. His conclusion? The "data [...] show that out of field teaching is not primarily due to school hiring difficulties resulting from teacher shortages."[1]

Dr. Ingersoll also found that these factors contribute to the large differences in out-of-field teaching between low-income and more affluent schools. "Although teachers in disadvantaged schools are *slightly more likely* to have fewer qualifications, the are *far more likely* to be misassigned than are those in advantaged schools," according to his research.

Finally, Dr. Ingersoll's research points to the "revolving door" in teaching as a big part of the problem. We wouldn't have as many vacancies in core academic subjects if we were'nt so bad at keeping teachers in the profession, a phenomenon he traces to job dissatisfaction due to less-than-optimal working conditions.[2]

Taken together, his research findings suggest that the solution to a big chunk of this problem is in the hands of state officials and local administrators – *right now.*

2. Who's to blame? Certainly NOT the teachers.

Sometimes when we share data on teacher qualifications we hear that we are being too critical of American schoolteachers or engaging in a kind of statistical "teacher bashing." That's simply not the case, as a little common sense makes clear. Teachers clearly are not the villains behind the numbers in this report; political lethargy and outmoded administrative practices are. Ingersoll's studies suggest that out-of-field teaching frequently includes the assignment of otherwise highly-qualified teachers to subject areas that do not match their qualifications. In fact, as any teacher will tell you, teachers hate to be assigned out of field: The practice makes lesson preparation much more time-consuming and classroom instruction more frustrating. Like other professionals, most teachers desire to do the best job possible, a desire that's tragically thwarted when they are assigned to teach classes in subjects they do not know well.

3. Yes, we know that majors and minors are no guarantee.

We are not so naive as to think that, just because somebody has studied a subject in college, he or she knows enough to effectively teach that subject. Indeed, this is one of the reasons why we agree so strongly with the American Federation of Teachers in their call for rigorous testing of the subject matter knowledge of prospective teachers and why we believe that candidates need help with teaching strategies as well. (In fact, a large number of Education Trust staff members work in real schools and districts providing hands-on training for teachers.) We also recognize this in the study by including as "in field" those teachers who have a college major or minor in how to teach a particular subject (e.g., a degree in math education). It's also obvious that some teachers who did not formally study a subject extensively enough to earn a degree in it might have acquired the content knowledge in another profession or similar life experience.

That said, both research and experience make it very clear that while strong academic preparation in the field may not be sufficient in itself, it definitely is a necessary ingredient. And at the moment, the only consistently available measure of that knowledge is a college degree in the subject.

[1]Richard M. Ingersoll, *Out-of-Field Teaching, Educational Inequality, and the Organization of Schools: An Exploratory Analysis.* January 2002. University of Washington Center for the Study of Teaching and Policy.

[2]Richard M. Ingersoll, "Teacher Turnover and Teacher Shortages: An Organizational Analysis." *American Education Research Journal,* Fall 2001.

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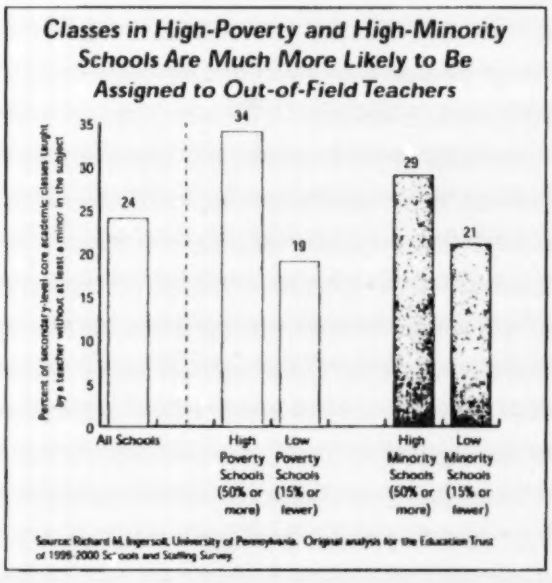
Also, because they are based on surveys from a sample of teachers, the data in this report are subject to what statisticians call "measurement error." We include additional information about the survey, the technical definitions used for this analysis, and a complete set of standard error tables in a technical appendix available online at the Education Trust's Web site, www.edtrust.org.

For this study, secondary classes include departmentalized courses in grades 7-12. Middle-grades or middle-level include departmentalized classes in grades 5-8; however, because we examined only core academic subjects, the number of 5th and 6th grade classes in this category was negligible. High school-level includes departmentalized classes in grades 9-12.

Finding #1. American secondary schools have unacceptably high rates of out-of-field teaching in core academic subjects, with classes in high-poverty and high-minority schools much more likely to be assigned to an out of field teacher than classes in low-poverty and low-minority schools.


Classes in High-Poverty and High-Minority Schools Are Much More Likely to Be Assigned to Out-of-Field Teachers
Percent of secondary-level core academic classes taught by a teacher without at least a minor in the subject
0
5
10
15
20
25
30
35
24
34
19
29
21
All Schools
High Poverty Schools (50% or more)
Low Poverty Schools (15% or fewer)
High Minority Schools (50% or more)
Low Minority Schools (15% or fewer)
Source: Richard M. Ingersoll, University of Pennsylvania. Original analysis for the Education Trust of 1999-2000 Schools and Staffing Survey.

Nationally, one out of four secondary classes in core academic subjects (24%) are assigned to a teacher lacking even a college minor in the subject being taught. In the nation's high-poverty schools, that rate skyrockets to over one third of classes (34%), compared with about one out of every five classes (19%) in low-poverty schools. Similarly, 29% of classes in high-minority schools are assigned to an out-of-field teacher, compared with 21% in low-minority schools.

While the numbers clearly show that assignment of out-of-field teachers is a pervasive and widespread problem, affecting even the nation's more affluent schools, the equity implications of this study are staggering. Classes in high-poverty schools are *77% more likely* to be assigned to an out of field teacher than classes in low-poverty schools. While the gap is not as large between high and low-minority schools, minority students clearly are less likely to get their fair share of qualified teachers as well. Classes in majority non-white schools are over 40% more likely to be assigned to an out-of-field teacher than those in mostly-white schools.

(This study defines a "high-poverty" school as one where 50% or more of the students qualify for the federal free- and reduced-price lunch program, and a "low-poverty" school as one where 15% or fewer students did so. We used the same cutoffs to define "high-minority" and "low-minority" schools, with "minority" including all race/ethnicity categories other than white.)

It's important to keep in mind that, if anything, these figures *underestimate* the problem. The analysis considers a teacher as being assigned out of field only if he or she lacks *at least a college minor* in the subject being taught or in a related field. (When examining high schools separately, we also include some figures using an undergraduate major as the criterion.) That

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means that a math teacher could have majored in communications and minored in statistics and still have qualified as being "in-field" under this definition.

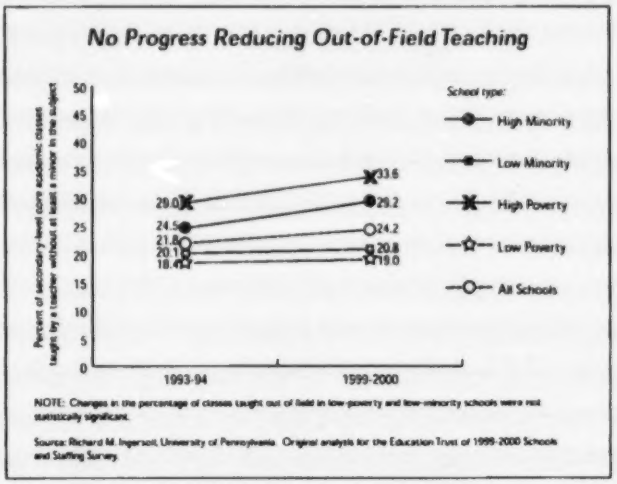
Indeed, the numbers rise dramatically if one sets that bar to require at least an undergraduate major, with, for example, about a third (32%) of secondary classes nationwide and a whopping two in five (41%) classes in the nation's high-poverty schools taught by someone lacking a degree at that level. We recognize that many people prefer such a definition for evaluating out-of-field teaching, and that the No Child Left Behind Act defines a "highly-qualified" secondary teacher as having majored in the subject being taught. But the figures in this report provide a minimum baseline for analyzing the problem. Few would argue with the notion that students deserve, and will most benefit from, someone who studied the subject thoroughly enough to earn at least a college minor in it.

Also, this research takes great care to consider college degrees in fields related to, but not specifically in, the subject being taught, including engineering for math and journalism or communications for English/language arts courses. Thus, someone teaching a high school calculus class who majored in engineering qualifies as "in-field" according to this definition. (See the technical appendix available online at www.edtrust.org for a detailed list of which college majors and minors qualified as "in-field" for which courses and subjects.)

Finding #2 – The nation made no progress reducing of out-of-field teaching between 1993-94 and 1999-2000, with rates becoming slightly worse overall and the biggest increases occurring in high-poverty and high-minority schools.

Nationally, the analysis found a small but statistically significant increase of about two and a half percentage points in the amount of out-of-field teaching between 1993-94 and 1999-2000, the last time the SASS survey was administered. There was no statistically significant increase in low-poverty and low-minority schools. However, out-of-field teaching in the nation's high-poverty and high-minority schools underwent a small but statistically significant increase of about 4.6 percentage points and about 4.7 percentage points respectively. While these increases might not seem huge, we find it troubling that during a period of intense talk about teacher misassignment, the problem actually got worse in the schools that enroll high proportions of students who need qualified teachers the most.

Finding #3 – High schools rely far too much on assignment of out-of-field teachers, but the problem is far worse in the nation's middle grades.



The Schools and Staffing Survey offers an unprecedented opportunity to analyze the extent of the problem in middle grades and high schools separately. The results clearly show that out-of-field teaching in the nation's middle grades is scandalously high overall and reaches crippling proportions in high-poverty and high-minority schools. Nationwide, 44% of middle-grade classes in core academic subjects are

assigned to a teacher who lacks even a college minor in the subject being taught. That number rises to well over half (53%) in high-poverty schools and nearly half (49%) in high-minority schools.

It's clear that most states and districts have not even *begun* to deal with the problem of out-of-field teaching in middle grades on even a very basic level. In fact, many states still grant generic teaching licenses that allow education majors to teach in grades all the way from kindergarten up through and including eighth grade! An eighth grade algebra teacher clearly needs more concentrated and comprehensive mathematics training than does a kindergarten teacher, and states that fail to recognize that in their licensing systems are aiding and abetting the staggering out-of-field teaching problem in the middle grades.

Yet, as bad as the problem is in middle grades, focusing all our attention there would be a mistake. These findings leave no room for complacency even at the high school level, where schools continue to rely far too much on the practice of assigning teachers out of field. Nearly one fifth (18%) of high school classes in core academic subjects are assigned to someone lacking *even a college minor* in the subject or in a related field, with the proportion reaching 21% in both high-poverty and high-minority schools.

When it comes to the more rigorous yet very reasonable expectation that high school teachers have an undergraduate major in a subject in order to teach it, the numbers get much bigger. Nearly one-fourth (24%) of all high school courses in core academic subjects are taught by someone lacking an undergraduate or graduate major in the field. In the nation's high-poverty high schools, that proportion reaches 29%, compared with 21% in low-poverty high schools. In high-minority schools, the rate is 28%, compared with 21% in low-minority schools.

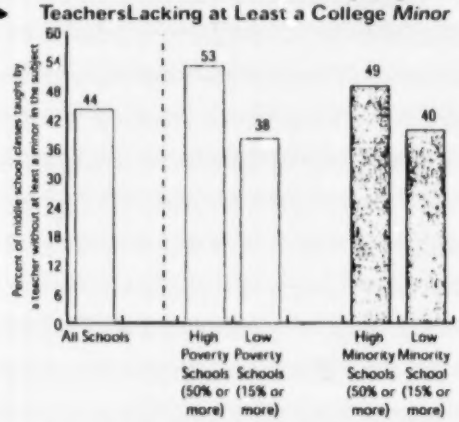
Finding #4 – The rates of out-of-field teacher assignment are particularly high in mathematics.

As part of a yearlong study on improving math education, we also examined the rates of out-of-field teaching in mathematics specifically. Not

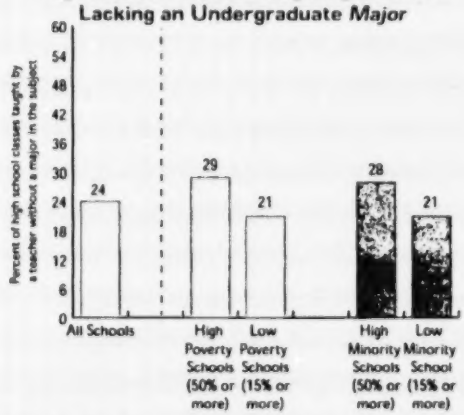
Middle Grades Are a Mess ... But High Schoolers Suffer Too

Out of field teaching reaches crisis proportions in middle grades, where half of the core academic classes in high-poverty and high-minority schools are assigned to someone lacking even a minor in the subject being taught. But high schools continue to rely on the practice far too much as well.

Middle Grades* - Classes Taught by TeachersLacking at Least a College *Minor



High Schools* - Classes Taught by Teachers Lacking an Undergraduate *Major



NOTE: Figures are for core academic courses only.

Source: Richard M. Ingersoll, University of Pennsylvania. Unpublished analysis for Ed Trust of 1999-2000 Schools and Staffing Survey.

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surprisingly, the problem is worse in math, but it is much worse than even we imagined. Nationwide, over one-third (35%) of secondary-level math classes are taught by someone lacking even a minor in math or a math-related field, such as statistics, physics, engineering or math education. That figure climbs to nearly half (49%) of math classes in high-poverty schools and 44% of math classes in high-minority schools.

Of course, the effects of the out-of-field teaching problem being greater in math, greater in high-poverty and -minority schools, and greater in middle schools combine to create what can only be called a crisis in middle-level math teaching in the nation's most disadvantaged schools. About *70%* of middle-grade math classes in high-poverty and high-minority schools are assigned to a teacher who lacks even a college minor in math or a math-related field.

Much has been made about the fact that the nation seems to be making much less progress in improving student achievement at the secondary level than at the elementary school level. We think these findings provide some important insights into why. Middle and high school teachers need an adequate background in a subject, particularly mathematics, if they are to teach it well.

Finding #5 – States differ widely in their levels of out-of-field teaching, as well as in the extent to which the practice disproportionately affects poor and minority students.

Levels of out-of-field teaching vary widely across the states. For example, in Nebraska, Wisconsin, Indiana, and in particular Minnesota, core academic classes are much less likely to be assigned to an out-of-field teacher, with under one in six classes in each state being misassigned. By comparison, the rate triples in states like Louisiana, Delaware, Tennessee, New Mexico and Arizona, where over a third of all secondary classes in core academic subjects are assigned to a teacher lacking at least a minor in the subject. The table on the following page shows the overall rate of out-of-field teaching in each state according to teacher responses to the federal Schools and Staffing Survey, as well as the percentage of classes taught out of field in each state's high-poverty, low-poverty, high-minority, and low-minority schools.

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Percent of secondary classes in core academic subjects that are taught by teachers lacking at least a minor in the field, 1999-2000

Overall	By Poverty Enrollment		By Minority Enrollment	
State	All Schools	Low-Poverty Schools	High-Poverty Schools	Low-Minority Schools	High-Minority Schools
Alabama	23	10	23	20	27
Alaska	29	18	40	22	37
Arizona	35	25	44	35	39
Arkansas	18	10	26	16	23
California	27	23	27	28	26
Colorado	20	11	35	17	34
Connecticut	27	25	37	28	36
DC	18	*	*	*	20
Delaware	37	*	*	*	*
Florida	28	14	47	18	31
Georgia	31	34	43	36	42
Hawaii	33	*	39	*	35
Idaho	26	10	46	25	*
Illinois	22	15	47	17	37
Indiana	13	13	*	14	*
Iowa	16	14	*	14	*
Kansas	20	21	21	20	*
Kentucky	32	*	51	33	*
Louisiana	40	38	51	38	42
Maine	29	24	*	30	*
Maryland	22	14	*	33	35
Massachusetts	19	14	*	15	32
Michigan	20	17	25	19	25
Minnesota	7	3	10	6	*
Mississippi	30	*	32	34	29
Missouri	24	14	37	22	39
Montana	20	11	30	21	*
Nebraska	15	18	17	18	*
Nevada	30	29	*	*	*
New Hampshire	21	13	*	22	*
New Jersey	17	19	*	20	21
New Mexico	35	29	37	*	35
New York	18	18	15	16	21
North Carolina	19	13	34	10	21
North Dakota	16	16	29	13	*
Ohio	30	26	42	28	*
Oklahoma	26	26	28	27	31
Oregon	26	18	49	27	*
Pennsylvania	22	15	34	19	18
Rhode Island	18	15	*	11	*
South Carolina	22	16	13	20	23
South Dakota	22	9	36	19	24
Tennessee	36	30	41	39	39
Texas	30	23	36	24	30
Utah	19	9	50	18	*
Vermont	23	27	*	20	*
Virginia	28	31	38	27	23
Washington	26	18	35	25	32
West Virginia	30	*	29	28	*
Wisconsin	14	12	*	11	*
Wyoming	19	24	*	19	*
Nation	**24**	**19**	**34**	**21**	**29**

NOTE: All figures are based on statistically representative samples. Precise standard error figures for all data in this report are available in a technical appendix on our Web site, www.edtrust.org. "High-poverty" refers to schools where 50 percent or more of the students qualify for the federal free- and reduced-price lunch program, while "low-poverty" refers to schools where 15 percent or fewer students qualify. "High-minority" refers to schools where 50 percent or more of the students are non-white, while "low-minority" refers to schools where 15 percent or fewer students are non-white.

* Indicates that the sample size was too small for a reliable estimate.

Source: Richard M. Ingersoll, University of Pennsylvania. Original analysis for the Education Trust of 1999-2000 Schools and Staffing Survey.

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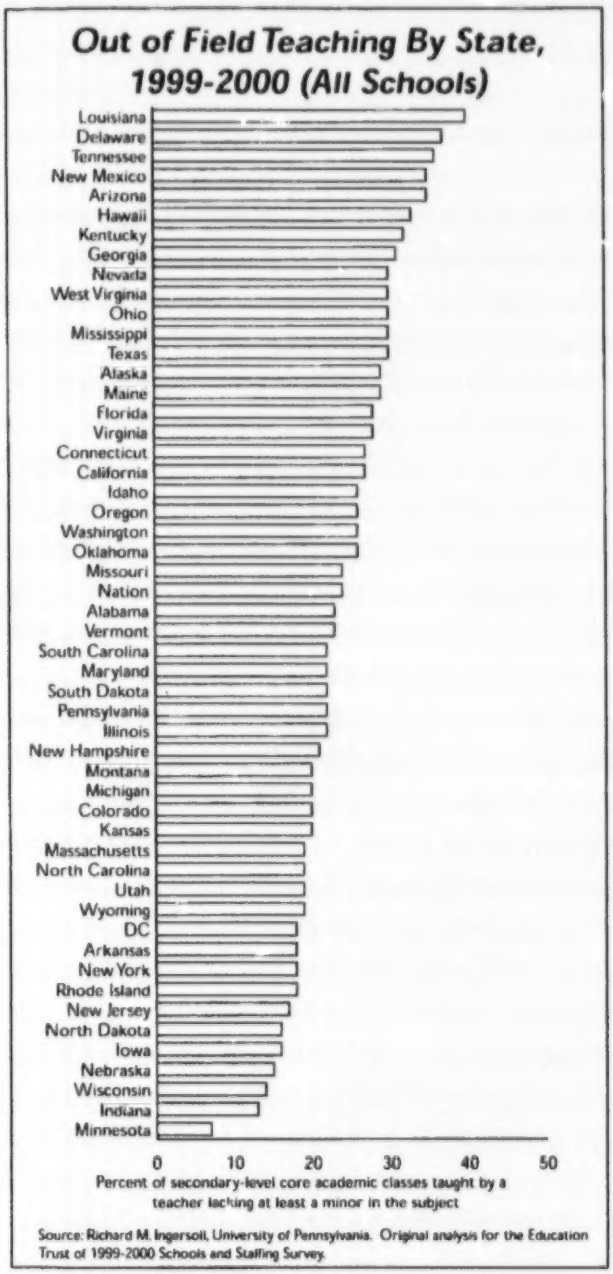

Closing the Teacher Quality Gap

While the findings of this study are profoundly disappointing, they also are unsurprising. Again and again, no matter which measure of teacher quality we use, we find that poor and minority children consistently receive substantially fewer well-qualified teachers.

- They are about twice as likely as other children to serve as training fodder for inexperienced teachers (21% of teachers in high-minority schools versus 10% in low-minority schools).[2]
- They are nearly twice as likely as the average child to be taught by uncertified teachers (9% in high-poverty schools compared with 5% in all schools).[3]
- They are taught disproportionately by teachers who themselves scored poorly on college or licensure exams.[4]
- Finally, they are considerably more likely, as these new data remind us, to be taught during their secondary school years by teachers working outside their areas of college preparation.

To those who would respond that these numbers still don't prove that poor and minority students are getting less effective teachers, we would say this: In states and communities where researchers using "value added" techniques have been able to identify teachers who consistently are most *effective* at raising student achievement, they find that poor and minority children receive fewer of those teachers as well.

The No Child Left Behind Act establishes for the first time ever a truly nationwide goal of reducing and ultimately erasing achievement gaps between groups of students, including poor and

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minority children. Recognizing the key role that high-quality teaching will play in reaching that goal, the law also requires all students to be taught by a "highly qualified" teacher, and specifies that, at the secondary level, "highly qualified" requires demonstration of adequate content knowledge as well as effective teaching methods.

The act's requirement that all teachers be "highly qualified" has, of course, drawn most of the attention to date. But there are also other important provisions in the law aimed at the equalization issue. These include:

1. A requirement that states collect and distribute information on the number and distribution of less-than-fully-qualified teachers, and submit to the Department of Education a plan to ensure that poor and minority children are not taught by a disproportionately large share of such teachers;

2. A "Parent Right to Know" requirement that schools notify parents in writing when their children are taught by unqualified teachers; and

3. Provisions that allow—even encourage—states and districts to use the teacher quality allocations in both Title 1 and Title 2 to provide increased salaries and professional development for teachers in high-poverty schools.

Most states, of course, have yet to act on these requirements. But some are already out ahead. Both Louisiana and Kentucky, for example, have put credential information for every one of their teachers on a public access website.

The goal of a highly qualified teacher for every child is achievable. But not if we continue to talk boldly about the problem of out-of-field teaching while continuing to act in timid or traditional ways.

Fortunately, there are some potent images to draw on as we design more powerful action strategies. Some of these are described in the recommendations section below.

A Few Action Recommendations

1. Act immediately on the half of this problem that is within our control right now—the half that's mostly about misassignment and about not working to hang on to the quality teachers we've got.

Richard Ingersoll's work makes it painfully clear that much of the problem of out-of-field teaching is not about supply. Rather, too many school leaders assign teachers without thinking about the ramifications for them or their students. And too many states say that they "prohibit" this practice, even as they tolerate countless unnecessary loopholes.

School leaders must be more mindful of the serious consequences for students (as perhaps they will be now that they must report out-of-field assignments to parents). But states also must act aggressively to close existing loopholes. Defining teachers as "in field" if they are teaching "only" two courses out of field is not, for example, an honest policy.

As far as hanging on to teachers, there's an obvious two-part strategy for districts:

- Concentrating on appointing effective school leaders, who will work with their teachers to create a climate that values effective teaching and supports instructional improvement; and,
- Shifting professional development resources *away from* the mind-numbing, "drive-by" workshops that currently cause good teachers to run screaming into the night and *into* the kind of intensive, content-rich professional

mentoring and growth opportunities that both improve teacher effectiveness and teacher morale.

Experience in the Charlotte-Mecklenberg School District (North Carolina), which put together a combination of incentives for strong teachers to teach in high-poverty schools, including a reduced student load, points to the need to do both of these things. In schools where they put an effective leader in place, these incentives were wonderfully effective; in schools where they failed to get a good leader in place, all the incentives in the world didn't work.

2. Get Clear About Standards for Teachers in the Middle Grades.

While most state licensure boards already require an academic major for a high school credential, they are much more lenient about the academic preparation of teachers in the middle grades. *States that have not already done so should stop granting generic K-8 teaching licenses. Instead, they should ask their universities to work closely with outstanding middle grades teachers to design preparation programs specifically for the middle grades, and they should assure that such programs are aligned with state standards and focus on rich academic content.*

The University System of Georgia (USG) provides an interesting model of a university that did this *without* state prodding. Several years ago, concerned about whether the teachers they were producing were capable of teaching students to state standards, the faculty at USG looked closely both at what teachers needed to know to teach to those standards and at where in the university they might learn it. Accordingly, they designed and voluntarily adopted a new set of course requirements for prospective middle grades teachers that require them to complete two academic concentrations of 12-15 units apiece; at least 9 of the credit hours in each discipline must be upper division.

3. Hold Standards High, Pump Up Supply.

There is a widespread misconception that higher standards inevitably will result in reducing the supply of qualified candidates. Years of experience teach us otherwise: Talented people are *attracted* by selectivity and high standards, not repelled by them. But teaching's image as a low-standards and low-status profession won't be overcome without some help from leaders in higher education, K-12 systems and the policy arena. Here are a few concrete ideas from the field.

- Some states—notably West Virginia—include both quality and *quantity* measures in their accountability systems for teacher preparation programs required under Title 2 of the Higher Education Act. More should.
- Some university systems—notably the Texas A&M System and the California State University System—are voluntarily adopting their own goals for substantially increasing their output of new teachers and holding their campuses accountable for meeting those goals. Cal State's numbers increased by 27% in just a few years.
- Some academic departments or colleges—notably the College of Natural Sciences (CNS) at the University of Texas at Austin's UTeach Program—are voluntarily creating their own, high-end teacher preparation programs and recruiting their strongest students into those programs. In the year prior to the creation of UTeach, the campus produced about 7 new math and science teachers. The first UTeach class—which attracts top CNS students who would not otherwise have considered teach-

ing—enrolled 27 students in 1997, with 290 enrolled today. Their GPAs average over a 3.0 and 47% were in the top 10% of their class. According to their data, UTeach alone can meet 10%-15% of the Texas demand for math/science teachers in two years and if expanded to other universities across the country, much of the US demand can be met

- Some K-12 systems—including California's Elk Grove School District and the Texas Education Agency's Regional Service Centers—are mounting their own teacher preparation programs for talented recent graduates and career changers.

- K-12 recruiters also should look to newly minted PhDs in mathematics and science. In a report released in July, the National Research Council (NRC) found that only 1% of math and science PhDs are employed in K-12 education. One obstacle: strict certification rules that discourage PhDs from pursuing public school teaching. When they surveyed recent math and science PhDs still without jobs, the NRC found that 36% were open to the idea. At a time when many of those new PhDs are struggling to find jobs in business or in colleges, enlisting them in filling some of the K-12 math and science vacancies is a real possibility.

- England has taken several steps that would be smart for us to follow. First, the government actually pays a "training wage" (in addition to loan forgiveness) to people who want to become teachers and, in an attempt to aggressively tap the "Mom market," provides high quality child care as well. As a result of both the training wage and a new "golden hello" to new teachers in core disciplines, applicants for teacher preparation programs are up by about 18%, with strong gains in math and physics, and applications for teaching positions are up by about 9% in high school and 15% in elementary school. But, some years ago, England also began taking a very different approach with higher education. Essentially, they now contract with individual colleges and universities to prepare a specific number of teachers who meet certain explicit standards.

4. Use Up-to-date Recruitment Techniques and Find New Partners.

When school districts don't receive sufficient applicants in a field, they are likely to blame the problem on shortages—even when the data suggest no such thing. The experience of the New Teacher Project would suggest that the problem often rests with recruitment practices.

- For a long time, conventional wisdom suggested that New York City would never be able to attract sufficient numbers of high quality teachers. Now folks aren't so sure. Three years ago, the city schools contracted with the New Teacher Project to recruit able alternate route candidates who wanted to teach in hard-to-staff schools. In three months, project staff produced 2,300 candidates. In 2001, that number grew to more than 8,000. Last year, it soared to 12,899 complete and eligible applications—including 1,371 who were math-qualified, 1,934 who were bilingual-qualified, and 5,427 qualified in special education. (The largest single category of applicants? Lawyers!) Twenty-two percent of the eventual cohort of 1,200 "teaching fellows" had graduate degrees; their college GPAs averaged 3.5; and 42% were people of color.

- Interestingly, the New Teacher Project's techniques seem to work with fully credentialed teachers as well. Last year, they contracted

with a large mid-western school district to recruit 100-125 credentialed teachers for critical subject areas and hard-to-staff schools. In three months, they produced 741 applicants, 136 of which were hired—all in high need areas. Indeed, in every high need category, the Project produced more fully credentialed teachers than did the District's human resources department.

5. Press School Districts to Work Toward a Fair Distribution of Teacher Talent and Provide Incentives for Effective Teachers to Teach in High-poverty and High-minority Schools.

The experiences of alternate route providers—including New Jersey's alternate route initiative, the Wallace-Readers Digest Pathways initiative, the New Teacher Project, and Teach for America—provide convincing evidence that there are many bright, young (and not-so-young) people out there who are attracted to the challenge of teaching in high-poverty schools. There also are far more talented people of color in this category than seem to be coming through traditional teacher preparation programs, where minority representation has been dwindling. Yes, such nontraditional teachers will need lots of help before and during their initial years in the classroom. They know that, and we know that. But methodically seeking out folks like this is part of the solution to the current maldistribution of highly qualified teachers.

Other actions can help, too, including:

- Relentless pressure from federal and state governments to equalize the distribution of teacher talent, including a clear statement that the responsibility of fairly distributing teachers to different groups of students cannot be bargained away;
- State policies—like the one in New York that prohibits unqualified teachers from being hired in low-performing schools[5];
- Aggressive publication of honest data on the distribution of teacher talent;
- Substantial financial incentives, subsidized masters degree programs and extra-rich professional development opportunities for teachers willing to teach in high need schools. If possible, these should be coupled with reduced student loads and extra staff to help meet students' non-academic needs. The goal is to even out the per-teacher "workload."

These are just a few of the concrete actions that communities and states can take to address the inequities described in this report. We are convinced, however, that all of the incentives in the world won't do the trick unless we also take on a more fundamental problem: the perverse status hierarchy in the teaching profession.

At the moment, status in the teaching profession flows not from one's effectiveness as a teacher, but rather from how elite the students are that one teaches. This is true not only in K-12, but also in higher education, where even the least effective professor in a research university has more prestige than the very best professor in a community college. Incentives will help. But we've also got to enlist teacher leaders at every level in turning this status system around and in restoring honor to those who are doing the hugely important work of taking poor and minority students to high levels of academic achievement.

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[1]Richard M. Ingersoll, Out-of-Field Teaching, Educational Inequality, and the Organization of Schools: An Exploratory Analysis. January 2002. University of Washington Center for the Study of Teaching and Policy.

[2]Monitoring School Quality: An Indicators Report. National

Center for Education Statistics; December, 2000.

[3]Meeting the Highly Qualified Teachers Challenge: The Secretary's Annual Report on Teacher Quality. US Department of Education, 2002, p. 61.

[4]See, for example, Kain and Singleton, "Equality of Educational Opportunity Revisited," New England Economic Review, May/June 1996, p. 10; Rossi et al, Chicago Sun-Times, September, 2001; and Lankfor, Loeb and Wyckoff, "Teacher Sorting and the Plight of Urban Schools: A Descriptive Analysis, January, 2002.

[5]This policy has applied to all low-performing schools in New York City since 1999, and will apply to all low-performing schools in the state begining in 2003.

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